IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: Jill MacDonald Boyce | Examiner: Thompson, J.

Serial No: 10/559,643 | Group Art Unit: 2625

Filed: December 2, 2005 | Docket: PU040104

For: DECODING METHOD AND APPARATUS ENABLING FAST CHANNEL CHANGE OF COMPRESSED VIDEO

Mail Stop Appeal Brief-Patents
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Applicant appeals the status of Claims 1-11 as presented in response to a non-final Office Action dated July 29, 2010, rejected in a final Office Action dated October 4, 2010, and rejected in a non-final Office Action dated December 27, 2010, pursuant to the Notice of Appeal filed concurrently herewith and submit this appeal brief.

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1. Real Party in Interest

The real party in interest is THOMSON LICENSING, the assignee of the entire right title and interest in and to the subject application by virtue of an assignment recorded with the Patent Office on December 21, 2005 at reel/frame 017326/0550.

2. Related Appeals and Interferences

Regarding another application, namely U.S. Patent Application No. 10/560,477 (hereinafter the "'477 Application"), an Appeal is currently pending there for. In the prosecution of the '477 Application, a Notice of Appeal and a corresponding Appeal Brief were filed on January 7, 2011, appealing from a final Office Action dated November 18, 2010 and a non-final Office Action dated September 21, 2010 (i.e., twice rejected). The Applicants now await the Board's decision.

3. Status of Claims

Claims 1-11 are pending, stand rejected, and are under appeal. A copy of the Claims 1-11 is presented in Section 8 below.

4. Status of Amendments

A Preliminary Amendment under 37 CFR §1.115, mailed to the PTO on December 2, 2005, was entered. An amendment under 37 CFR §1.111, mailed to the PTO on September 28, 2010 in response to a non-final Office Action dated July 29, 2010, was entered. An amendment and Request for Continued Examination (RCE) under 37 CFR §1.114, mailed to the PTO on November 2, 2010 in response to a non-final Office Action dated October 4, 2010, was entered. No Responses/Amendments were filed subsequent to the above Amendment and Request for Continued Examination (RCE) on November 2, 2010. A non-final Office Action dated December 27, 2010, to which this Appeal Brief is directed, is currently pending.

5. Summary of Claimed Subject Matter

Independent Claim 1 is directed to "[a] video decoder for receiving compressed stream data and providing decompressed video output" (Claim 1, preamble).

The subject matter of the first element (beginning with "a demultiplexor") recited in Claim 1 is described, e.g., at: page 5, lines 5-19; and page 12, line 32 to page 13, line 3. Moreover, the subject matter of the first element of Claim 1 involves, e.g.: element 710 of FIG. 7.

The subject matter of the second element (beginning with "a normal decoding portion") recited in Claim 1 is described, e.g., at: page 12, line 32 to page 13, line 5. Moreover, the subject matter of the second element of Claim 1 involves, e.g.: element 712 of FIG. 7.

The subject matter of the third element (beginning with "at least one normal frame store") recited in Claim 1 is described, e.g., at: page 13, lines 3-5. Moreover, the subject matter of the third element of Claim 1 involves, e.g.: element 714 of FIG. 7.

Independent Claim 10 is directed to "[i]n a video decoder, a video decoding method for receiving compressed stream data and providing decompressed video output" (Claim 10, preamble).

The subject matter of the first element (beginning with "receiving the compressed stream data") recited in Claim 10 is described, e.g., at: page 13, lines 28-31. Moreover, the subject matter of the first element of Claim 10 involves, e.g.: elements 912 and 914 of FIG. 9.

The subject matter of the second element (beginning with "receiving at least one of the compressed normal and channel change streams") recited in Claim 10 is described, e.g., at: page 13, line 31 to page 14, line 1. Moreover, the subject matter of the second element of Claim 10

involves, e.g.: element 916 of FIG. 9.

The subject matter of the third element (beginning with "storing") recited in Claim 10 is described, e.g., at: page 13, lines 1-3. Moreover, the subject matter of the third element of Claim 10 involves, e.g.: element 918 of FIG. 8.

6. Grounds of Rejection to be Reviewed on Appeal

Claims 1, 4, and 7-11 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter "Reitmeier").

Claims 2 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of U.S. Patent No. 7,143,432 to Brooks et al. (hereinafter "Brooks").

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of U.S. Patent No. 7,675,972 to Laksono et al. (hereinafter "Laksono").

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of well-known prior art.

Claims 1, 4, and 7-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of U.S. Patent No. 6,480,541 to Girod et al. (hereinafter "Girod").

Claims 2 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of Girod and Brooks.

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of Girod and Laksono.

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Reitmeier in view of Girod and well-known prior art.

The preceding rejections are presented for review in this Appeal.

7. Argument

A. Introduction

In general, the present invention is directed to a decoding method and apparatus enabling fast channel change of compressed video (Applicant's Specification, Title). As disclosed in the Applicant's specification, the present invention is directed to the problem of channel change delay. For example, as noted at page 1, lines 24-26 of the Applicant's specification: "[w]hen a receiver initially begins receiving a program on a particular channel, such as following a channel change or initial turning on of the receiver, it must wait until an I picture is received to begin decoding properly, which causes a delay."

In contrast to the prior art, "the invention enables low delay channel change time in a compressed video broadcast system, while significantly reducing the bitrate over prior methods of enabling low-delay channel change" (Applications' specification, p. 4, lines 26-29).

The claims of the pending invention include novel features not shown in the cited references and that have already been pointed out to the Examiner. These features provide advantages over the prior art and dispense with prior art problems such as undue channel change delay (Applicant's specification, p. 4, lines 16-29).

It is respectfully asserted that Claims 1 and 10 are each patentably distinct and non-obvious over the cited references in their own right. For example, the below-identified limitations of Claims 1 and 10 are not shown in the cited reference. Moreover, these Claims are distinct from each other in that they are directed to different implementations and/or include different limitations. For example, Claim 1 is directed to a video decoder, and Claim 10 is directed to a video decoding method (Claims 1 and 10, preambles). Accordingly, each of Claims

1 and 10 represent separate features/implementations of the invention that are separately novel and non-obvious with respect to the prior art and to the other claims. As such, Claims 1 and 10 are separately patentable and are each presented for review in this appeal.

B. Whether Claims 1, 4, and 7-11 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,118,498 to Reitmeier

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner rejected Claims 1, 4, and 7-11 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter "Reitmeier" in short). The Examiner contends that the cited combination shows all the limitations recited in Claims 1, 4, and 7-11.

Reitmeier is directed to a "channel scanning and channel change latency reduction in an ATSC television receiver" (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such

as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

It will be shown that the limitations of Claims 1, 4, and 7-11 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claims should be allowed including those dependent there from.

B1. Claims 1, 4, and 7-11

Initially, it is respectfully noted that Claims 1, 4, and 7-9 directly or indirectly depend from independent Claim 1, and Claim 11 directly depends from independent Claim 10. Thus, Claims 1, 4, and 7-9 include all the limitations of Claim 1, and Claim 11 includes all the limitations of independent Claim 10.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 1, 4, and 7-9 (with the following applicable to Claims 4 and 7-9 by virtue of their respective dependencies from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Moreover, it is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 10-11 (with the following applicable to Claim 11 by virtue of its respective dependency from Claim 10):

10. In a video decoder, a video decoding method for receiving compressed stream data and providing decompressed video output, the method comprising:

receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claims 1, 4, and 7-9 are explicitly directed to a video decoder, and Claims 10-11 are explicitly directed to a method in a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claims 1, 4, and 7-11.

Thus, per Claims 1, 4, and 7-9, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication

with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is intermediately connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claims 1, 4, and 7-9. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claims 1, 4, and 7-11) is performed external to the decoder (45) directly contrary to the explicit limitations recited in each of Claims 1, 4, and 7-11, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claims 1, 4, and 7-11, the Examiner has cited the same stream being demultiplexed. For example, against the preceding limitations of Claims 1, 4, and 7-11, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same

program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claims 1, 4, and 7-9, and "receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claims 10-11, let alone that those elements are comprised within a video decoder as recited in Claims 1, 4, and 7-9 and that those steps are performed by a video decoder as recited in Claims 10-11, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the

receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claims 1, 4, and 7-9 and the first step <u>in the decoding method</u> of Claims 10-11 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11.

That is, while Claims 1, 4, and 7-11 involve storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claims 1, 4, and 7-11 involve a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claims 1, 4, and 7-11.

Additionally, while the channel change stream recited in Claims 1, 4, and 7-11 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claims 1, 4, and 7-9 and with respect to the receiving and separating step of Claims 10-11), the I-frame in Reitmeier is parsed from a video elementary stream in the demux

30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claims 1, 4, and 7-11. To that end, we note the **Examiner's inconsistency** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated within the decoder, in direct contrast to the explicit limitations of Claims 1, 4, and 7-11. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claims 1, 4, and 7-11, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claims 1, 4, and 7-11.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claims 1, 4, and 7-11 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claims 1, 4, and 7-11, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a

channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claims 1, 4, and 7-9 are explicitly directed to a video decoder, and Claims 10-11 are explicitly directed to a method in a video decoder, we further note that Claims 1, 4, and 7-9 explicitly recite, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures" and Claims 10-11 explicitly recite, *inter alia*, "storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claims 1, 4, and 7-11, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claims 1, 4, and 7-11, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claims 1, 4, and 7-11, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, such memory (34) could NOT be used for decoding inter-coded pictures (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claims 1, 4, and 7-11, where both a normal stream and a channel change stream are concurrently

received (via the compressed stream).

Hence, in all these regards, Reitmeier fails to teach or suggest all the above reproduced limitations of Claims 1, 4, and 7-11.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claims 1, 4, and 7-11, and a proper *prima facie* anticipation rejection has not been made.

Accordingly, Claims 1, 4, and 7-11 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claims 1, 4, and 7-11 is earnestly requested.

C. Whether Claims 2 and 5 are Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 7,143,432 to Brooks et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its*

limitations - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 2 and 5 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter "Reitmeier" in short) in view of U.S. Patent No. 7,143,432 to Brooks et al. (hereinafter "Brooks" in short). The Examiner contends that the cited combination shows all the limitations recited in Claims 2 and 5.

Reitmeier is directed to a "channel scanning and channel change latency reduction in an ATSC television receiver" (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this

manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Brooks directed to a “system for transforming streaming video data” (Brooks, Title). In further detail, Brooks discloses in the abstract, the following:

According to one embodiment, a circuit configured to form an output video stream includes a resolution modification circuit configured to receive a plurality of video frames from a frame buffer, and configured to modify resolution of the plurality of video frames, when the desired resolution for the output video stream is different than a resolution of the input video stream, the plurality of frames of data derived from an input video stream, a frame reducing circuit coupled to the resolution reducing circuit configured to reduce a number of video frames in the plurality of video frames from the resolution reducing circuit, when a desired frame rate for the output video stream is different than a frame rate of the input video stream, a depth reduction circuit coupled to the frame reducing circuit configured to reduce bit depth of the plurality of video frames from the frame reducing circuit, when a desired bit depth for the output video stream is different than a bit depth of the input video stream, and a rate reduction circuit coupled to the depth reduction circuit, configured to scale the plurality of video frames from the depth reduction circuit, in response to a desired bit rate for the output video stream, and an encoder coupled to the rate reduction circuit, configured to encode the plurality of video frames from the rate reduction circuit into the output video stream is also contemplated.

It will be shown that the limitations of Claims 2 and 5 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claims should be allowed including those dependent there from.

C1. Claims 2 and 5

Initially, it is respectfully noted that Claims 2 and 5 directly or indirectly depend from independent Claim 1. Thus, Claims 2 and 5 include all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 2 and 5 (with the following applicable to Claims 2 and 5 by virtue of their respective dependencies from Claim 1):

> 1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:
>
> a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;
>
> a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and
>
> at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claims 2 and 5 are explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claims 2 and 5.

Thus, per Claims 2 and 5, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in

Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is intermediately connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claims 2 and 5. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claims 2 and 5) is performed external to the decoder (45) directly contrary to the explicit limitations recited in each of Claims 2 and 5, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claims 2 and 5, the Examiner has cited the same stream being demultiplexed. For example, against the preceding limitations of Claims 2 and 5, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claims 2 and 5. That is, if the transport

program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claims 2 and 5, let alone that those elements are comprised within a video decoder as recited in Claims 2 and 5, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and

misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claims 2 and 5 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claims 2 and 5.

That is, while Claims 2 and 5 involve storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claims 2 and 5 involve a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claims 2 and 5.

Additionally, while the channel change stream recited in Claims 2 and 5 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claims 2 and 5), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claims 2 and 5. To that end, we note the **<u>Examiner's inconsistency</u>** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated <u>within</u> the decoder, in direct contrast

to the explicit limitations of Claims 2 and 5. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claims 2 and 5, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claims 2 and 5. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claims 2 and 5.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claims 2 and 5 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claims 2 and 5, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claims 2 and 5, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claims 2 and 5 are explicitly directed to a video decoder, we further note that Claims 2 and 5 explicitly recite, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations

of Claims 2 and 5, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claims 2 and 5, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claims 2 and 5, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, <u>such memory (34) could NOT be used for decoding inter-coded pictures</u> (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45)

would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claims 2 and 5, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Hence, in all these regards, Reitmeier fails to teach or suggest all the above reproduced limitations of Claims 2 and 5. Moreover, Brooks fails to cure the deficiencies of Reitmeier, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claims 2 and 5, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claims 2 and 5 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claims 2 and 5 is earnestly requested.

D. Whether Claim 3 is Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 7,675,972 to Laksono et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claim 3 as being unpatentable over by U.S. Patent No. 6,118,498

to Reitmeier (hereinafter “Reitmeier” in short) in view of U.S. Patent No. 7,675,972 to Laksono et al. (hereinafter “Laksono” in short). The Examiner contends that the cited combination shows all the limitations recited in Claim 3.

Reitmeier is directed to a “channel scanning and channel change latency reduction in an ATSC television receiver” (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Laksono directed to a “system and method for multiple channel video transcoding” (Laksono, Title). In further detail, Laksono discloses in the abstract, the following:

A system and a method for transcoding multiple media channels is disclosed herein. The system includes a first processor to parse a media data stream having one or more media data channels and a vector processor to decompress, scale, and then compress the parsed media channel. A parsed media data channel, in one embodiment, is accessed using a bit manipulator and packetized into decoder instruction packets and transmitted to the vector processor using a sequencer. The vector processor decompresses the decoder instruction packets, scales a macroblock generated from the packets, and then compresses the scaled macroblock. As a result, the scaled and compressed output has less data associated with the media channel, allowing for faster and/or more efficient storage or transmission. A reduced sized scale buffer is associated with another disclosed embodiment.

It will be shown that the limitations of Claim 3 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claim should be allowed including those dependent there from.

D1. Claim 3

Initially, it is respectfully noted that Claim 3 directly depends from independent Claim 1. Thus, Claim 3 includes all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claim 3 (with the following applicable to Claim 3 by virtue of its respective dependency from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claim 3 is explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claim 3.

Thus, per Claim 3, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal

decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is <u>intermediately</u> connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claim 3. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claim 3) is performed external to the decoder (45) directly contrary to the explicit limitations recited in Claim 3, as is clearly evident from even a

cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claim 3, the Examiner has cited the same stream being demultiplexed. For example, against the preceding limitations of Claim 3, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claim 3. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder.

Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claim 3, let alone that those elements are comprised within a video decoder as recited in Claim 3, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claim 3 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claim 3.

That is, while Claim 3 involves storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claim 3 involves a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel

change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claim 3.

Additionally, while the channel change stream recited in Claim 3 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claim 3), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claim 3. To that end, we note the **Examiner's inconsistency** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated within the decoder, in direct contrast to the explicit limitations of Claim 3. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claim 3, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claim 3. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claim 3.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claim 3 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claim 3, namely as comprising a plurality of pictures for a

same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claim 3, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claim 3 is explicitly directed to a video decoder, we further note that Claim 3 explicitly recites, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claim 3, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claim 3, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claim 3, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even

explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, <u>such memory (34) could NOT be used for decoding inter-coded pictures</u> (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations

(Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claim 3, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Hence, in all these regards, Reitmeier fails to teach or suggest all the above reproduced limitations of Claim 3. Moreover, Laksono fails to cure the deficiencies of Reitmeier, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claim 3, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claim 3 is patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claim 3 is earnestly requested.

E. Whether Claim 6 is Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of well-known prior art

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the

claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious” (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claim 6 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter “Reitmeier” in short) in view of well-known prior art. The Examiner contends that the cited combination shows all the limitations recited in Claim 6.

Reitmeier is directed to a “channel scanning and channel change latency reduction in an ATSC television receiver” (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of

operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

It will be shown that the limitations of Claim 6 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claim should be allowed including those dependent there from.

E1. Claim 6

Initially, it is respectfully noted that Claim 6 directly depends from independent Claim 1. Thus, Claim 6 includes all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claim 6 (with the following applicable to Claim 6 by virtue of its respective dependency from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claim 6 is explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claim 6.

Thus, per Claim 6, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder

(45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is <u>intermediately</u> connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claim 6. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claim 6) is performed external to the decoder (45) directly contrary to the explicit limitations recited in Claim 6, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claim 6, the Examiner has cited the <u>same stream</u> being demultiplexed. For example, against the preceding limitations of Claim 6, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream

for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claim 6. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claim 6, let alone that those elements are comprised within a video decoder as recited in Claim 6, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in

calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claim 6 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claim 6.

That is, while Claim 6 involves storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claim 6 involves a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claim 6.

Additionally, while the channel change stream recited in Claim 6 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claim 6), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30

(Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claim 6. To that end, we note the **Examiner's inconsistency** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated within the decoder, in direct contrast to the explicit limitations of Claim 6. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claim 6, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claim 6. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claim 6.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claim 6 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claim 6, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claim 6, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claim 6 is explicitly directed to a video decoder, we further note that Claim 6 explicitly recites, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claim 6, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claim 6, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claim 6, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, <u>such memory (34) could NOT be used for decoding inter-coded pictures</u> (but only for decoding the single stored I-frame) as the access of

the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claim 6, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Hence, in all these regards, Reitmeier fails to teach or suggest all the above reproduced limitations of Claim 6. Moreover, the well-known prior art fails to cure the deficiencies of

Reitmeier, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claim 6, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claim 6 is patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claim 6 is earnestly requested.

F. Whether Claims 1, 4, and 7-11 are Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 6,480,541 to Girod et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an

independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 1, 4, and 7-11 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter "Reitmeier" in short) in view of in view of U.S. Patent No. 6,480,541 to Girod et al. (hereinafter "Girod" in short). The Examiner contends that the cited combination shows all the limitations recited in Claims 1, 4, and 7-11.

Reitmeier is directed to a "channel scanning and channel change latency reduction in an ATSC television receiver" (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation

parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Girod is directed to a "method and apparatus for providing scalable pre-compressed digital video with reduced quantization based artifacts" (Girod, Title). In further detail, Girod discloses in the abstract, the following:

> A method for generating a digital motion video sequence at a plurality of bit rates uses a transitional coding source when switching between bitstreams having different bit rates during transmission of a video sequence. The transitional data may be frames coded using reconstructed frames reconstructed for a first bitstream using the characteristics of the second bitstream. These "low bit rate insert frames," or LBIFs, contain the image characteristics of a signal coded at the lower bit rate. With a bitstream having a higher bit rate being periodically coded using an LBIF, a point of image continuity between the two bitstreams is provided. Thus, switching from one bitstream to the other at this point in the video sequence minimizes the production of artifacts caused by differences in bit rate. In another embodiment of the invention, a separate set of transitional data is created, taking the form of "switch" frames, or S-frames. The S-frames are typically the difference between a frame of a first bitstream and a frame of a second bitstream. These frames are inserted into the decoded bitstream during the transition from one bitstream to the other, and compensate for any visual artifacts that might otherwise occur due to the difference in bit rate of the two bitstreams.

It will be shown that the limitations of Claims 1, 4, and 7-11 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claims should be allowed including those dependent there from.

F1. Claims 1, 4, and 7-11

Initially, it is respectfully noted that Claims 1, 4, and 7-9 directly or indirectly depend from independent Claim 1, and Claim 11 directly depends from independent Claim 10. Thus, Claims 1, 4, and 7-9 include all the limitations of Claim 1, and Claim 11 includes all the limitations of independent Claim 10.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 1, 4, and 7-9 (with the following applicable to Claims 4 and 7-9 by virtue of their respective dependencies from Claim 1):

> 1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:
>
> a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;
>
> a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and
>
> at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Moreover, it is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 10-11 (with the

following applicable to Claim 11 by virtue of its respective dependency from Claim 10):

10. In a video decoder, a video decoding method for receiving compressed stream data and providing decompressed video output, the method comprising:

receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claims 1, 4, and 7-9 are explicitly directed to a video decoder, and Claims 10-11 are explicitly directed to a method in a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claims 1, 4, and 7-11.

Thus, per Claims 1, 4, and 7-9, a video decoder includes a demultiplexer and a normal decoding portion, with the demultiplexer connected in direct signal communication with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is intermediately connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claims 1, 4, and 7-9. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream

and the channel change stream" as recited in Claims 1, 4, and 7-11) is performed external to the decoder (45) directly contrary to the explicit limitations recited in each of Claims 1, 4, and 7-11, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claims 1, 4, and 7-11, the Examiner has cited the same stream being demultiplexed. For example, against the preceding limitations of Claims 1, 4, and 7-11, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data

source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claims 1, 4, and 7-9, and "receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claims 10-11, let alone that those elements are comprised within a video decoder as recited in Claims 1, 4, and 7-9 and that those steps are performed by a video decoder as recited in Claims 10-11, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claims 1, 4, and 7-9 and the first step <u>in the decoding method</u> of Claims 10-11 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations

recited in Claims 1, 4, and 7-11.

That is, while Claims 1, 4, and 7-11 involve storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claims 1, 4, and 7-11 involve a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claims 1, 4, and 7-11.

Additionally, while the channel change stream recited in Claims 1, 4, and 7-11 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claims 1, 4, and 7-9 and with respect to the receiving and separating step of Claims 10-11), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claims 1, 4, and 7-11. To that end, we note the **<u>Examiner's inconsistency</u>** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated <u>within</u> the decoder, in direct contrast to the explicit limitations of Claims 1, 4, and 7-11. Hence, <u>even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claims 1, 4, and 7-11, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11</u>. Thus, it seems that anyway Figure 1 of Reitmeier is

interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claims 1, 4, and 7-11.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claims 1, 4, and 7-11 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claims 1, 4, and 7-11, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claims 1, 4, and 7-11, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claims 1, 4, and 7-9 are explicitly directed to a video decoder, and Claims 10-11 are explicitly directed to a method in a video decoder, we further note that Claims 1, 4, and 7-9 explicitly recite, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures" and Claims 10-11 explicitly recite, *inter alia*, "storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claims 1, 4, and 7-11, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claims 1, 4, and 7-11, instead

directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claims 1, 4, and 7-11, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, <u>such memory (34) could NOT be used for decoding inter-coded pictures</u> (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears

to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claims 1, 4, and 7-11, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Regarding Girod, the same does not cure the deficiencies of Reitmeier. For example, the memories 140a, 140b, and 140c in cited Figure 2 of Girod are respectively outside of the encoders 100a, 100b, and 100c and hence simply store the encoded bitstreams that are respectively output from entropy coders 122a, 122b, and 122c. However, for such memories to be able to be used for decoding inter-coded pictures, such memories would need to be located within a decoder or "accessible" to a decoder for the purpose of decoding. That is, the decoder would need to know, *inter alia*, where such a picture is located within a video sequence to be able to determine whether forward or bi prediction is used, and so forth. Simply storing the output (i.e., a bitstream) of an encoder, that is simply adding a memory to the unidirectional output of an encoder, or even adding a memory to the unidirectional output of a decoder if such

memory were similarly disposed at the unidirectional output of the decoder (45) in the RECEIVER of Figure 1 of Reitmeier, would render the pictures stored in such memory incapable of being used to decode inter-coded pictures as recited in Claims 1, 4, and 7-11 for a number of reasons. As one reason, what is actually stored in the memories is a coded bitstream. However, as is known to one of skill in the art, a bitstream, as is (i.e., as output from the encoders 100a, 100b, and 100c in Figure 2 of Girod), cannot be used to decode inter-coded pictures. Another reason is that access is not available to the encoder or to the decoder (noting again that the output of the encoders 100a, 100b, and 100c in Figure 2 of Girod, and the output of decoder (45) in RECEIVER Figure 1 of Reitmeier, are unidirectional). Yet another reason is that the relevant information for a stored picture to be able to be used as a reference is lacking, certainly in how such information can be "usefully" provided to a decoder.

Hence, in all these regards, Reitmeier and Girod fail to teach or suggest all the above reproduced limitations of Claims 1 and 10.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claims 1, 4, and 7-11, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claims 1, 4, and 7-11 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claims 1, 4, and 7-11 is earnestly requested.

G. Whether Claims 2 and 5 are Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 6,480,541 to Girod et al. and

U.S. Patent No. 7,143,432 to Brooks et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious” (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 2 and 5 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter “Reitmeier” in short) in view of U.S. Patent No. 6,480,541 to Girod et al. (hereinafter “Girod” in short) and U.S. Patent No. 7,143,432 to Brooks et al. (hereinafter “Brooks” in short). The Examiner contends that the cited combination shows all the limitations recited in Claims 2 and 5.

Reitmeier is directed to a "channel scanning and channel change latency reduction in an ATSC television receiver" (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Girod is directed to a "method and apparatus for providing scalable pre-compressed digital video with reduced quantization based artifacts" (Girod, Title). In further detail, Girod discloses in the abstract, the following:

> A method for generating a digital motion video sequence at a plurality of bit rates uses a transitional coding source when switching between bitstreams having different bit rates during transmission of a video sequence. The transitional data may be frames coded using reconstructed frames reconstructed for a first bitstream using the characteristics of the second bitstream. These "low bit rate insert frames," or LBIFs, contain the image characteristics of a signal coded at the lower bit rate. With a bitstream having a higher bit rate being periodically coded using an LBIF, a point of image continuity between the two bitstreams is provided. Thus, switching from one bitstream to the other at this point in the video sequence minimizes the production of artifacts caused by differences in bit rate. In another embodiment of the invention, a separate set of transitional data is created, taking the form of "switch" frames, or S-frames. The S-frames are typically the difference between a frame of a first bitstream and a frame of a second bitstream. These frames are inserted into the decoded bitstream during the transition from one bitstream to the other, and compensate for any visual artifacts that might otherwise occur due to the difference in bit rate of the two bitstreams.

Brooks directed to a "system for transforming streaming video data" (Brooks, Title). In further detail, Brooks discloses in the abstract, the following:

> According to one embodiment, a circuit configured to form an output video stream includes a resolution modification circuit configured to receive a plurality of video frames from a frame buffer, and configured to modify resolution of the plurality of video frames, when the desired resolution for the output video stream is different than a resolution of the input video stream, the plurality of frames of data derived from an input video stream, a frame reducing circuit coupled to the resolution reducing circuit configured to reduce a number of video frames in the plurality of video frames from the resolution reducing circuit, when

a desired frame rate for the output video stream is different than a frame rate of the input video stream, a depth reduction circuit coupled to the frame reducing circuit configured to reduce bit depth of the plurality of video frames from the frame reducing circuit, when a desired bit depth for the output video stream is different than a bit depth of the input video stream, and a rate reduction circuit coupled to the depth reduction circuit, configured to scale the plurality of video frames from the depth reduction circuit, in response to a desired bit rate for the output video stream, and an encoder coupled to the rate reduction circuit, configured to encode the plurality of video frames from the rate reduction circuit into the output video stream is also contemplated.

It will be shown that the limitations of Claims 2 and 5 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claims should be allowed including those dependent there from.

G1. Claims 2 and 5

Initially, it is respectfully noted that Claims 2 and 5 directly or indirectly depend from independent Claim 1. Thus, Claims 2 and 5 include all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claims 2 and 5 (with the following applicable to Claims 2 and 5 by virtue of their respective dependencies from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claims 2 and 5 are explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claims 2 and 5.

Thus, per Claims 2 and 5, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in

direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is <u>intermediately</u> connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claims 2 and 5. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claims 2 and 5) is performed external to the decoder (45) directly contrary to the explicit limitations recited in each of Claims 2 and 5, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claims 2 and 5, the Examiner has cited the <u>same stream</u> being demultiplexed. For example, against the preceding limitations of Claims 2 and 5, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claims 2 and 5. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream

data and separating the normal stream and the channel change stream" as recited in Claims 2 and 5, let alone that those elements are comprised within a video decoder as recited in Claims 2 and 5, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claims 2 and 5 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claims 2 and 5.

That is, while Claims 2 and 5 involve storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claims 2 and 5 involve a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claims

2 and 5.

Additionally, while the channel change stream recited in Claims 2 and 5 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claims 2 and 5), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claims 2 and 5. To that end, we note the **Examiner's inconsistency** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated within the decoder, in direct contrast to the explicit limitations of Claims 2 and 5. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claims 2 and 5, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claims 2 and 5. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claims 2 and 5.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claims 2 and 5 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claims 2 and 5, namely as comprising a plurality

of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claims 2 and 5, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claims 2 and 5 are explicitly directed to a video decoder, we further note that Claims 2 and 5 explicitly recite, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claims 2 and 5, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claims 2 and 5, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claims 2 and 5, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of

Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, such memory (34) could NOT be used for decoding inter-coded pictures (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations

(Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claims 2 and 5, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Regarding Girod, the same does not cure the deficiencies of Reitmeier. For example, the memories 140a, 140b, and 140c in cited Figure 2 of Girod are respectively outside of the encoders 100a, 100b, and 100c and hence simply store the encoded bitstreams that are respectively output from entropy coders 122a, 122b, and 122c. However, for such memories to be able to be used for decoding inter-coded pictures, such memories would need to be located within a decoder or "accessible" to a decoder for the purpose of decoding. That is, the decoder would need to know, *inter alia*, where such a picture is located within a video sequence to be able to determine whether forward or bi prediction is used, and so forth. Simply storing the output (i.e., a bitstream) of an encoder, that is simply adding a memory to the unidirectional output of an encoder, or even adding a memory to the unidirectional output of a decoder if such memory were similarly disposed at the unidirectional output of the decoder (45) in the RECEIVER of Figure 1 of Reitmeier, would render the pictures stored in such memory incapable of being used to decode inter-coded pictures as recited in Claims 2 and 5 for a number of reasons. As one reason, what is actually stored in the memories is a coded bitstream. However, as is known to one of skill in the art, a bitstream, as is (i.e., as output from the encoders 100a, 100b, and 100c in Figure 2 of Girod), cannot be used to decode inter-coded pictures. Another reason is that access is not available to the encoder or to the decoder (noting again that the output of the encoders 100a, 100b, and 100c in Figure 2 of Girod, and the output of decoder (45) in RECEIVER Figure 1 of Reitmeier, are unidirectional). Yet another reason is that the relevant

information for a stored picture to be able to be used as a reference is lacking, certainly in how such information can be "usefully" provided to a decoder.

Hence, in all these regards, Reitmeier and Girod fail to teach or suggest all the above reproduced limitations of Claims 2 and 5. Moreover, Brooks fails to cure the deficiencies of Reitmeier and/or Girod, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claims 2 and 5, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claims 2 and 5 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claims 2 and 5 is earnestly requested.

H. Whether Claim 3 is Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 6,480,541 to Girod et al. and U.S. Patent No. 7,675,972 to Laksono et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the

claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claim 3 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter "Reitmeier" in short) in view of U.S. Patent No. 6,480,541 to Girod et al. (hereinafter "Girod" in short) and U.S. Patent No. 7,675,972 to Laksono et al. (hereinafter "Laksono" in short). The Examiner contends that the cited combination shows all the limitations recited in Claim 3.

Reitmeier is directed to a "channel scanning and channel change latency reduction in an ATSC television receiver" (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such

as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Girod is directed to a “method and apparatus for providing scalable pre-compressed digital video with reduced quantization based artifacts” (Girod, Title). In further detail, Girod discloses in the abstract, the following:

> A method for generating a digital motion video sequence at a plurality of bit rates uses a transitional coding source when switching between bitstreams having different bit rates during transmission of a video sequence. The transitional data may be frames coded using reconstructed frames reconstructed for a first bitstream using the characteristics of the second bitstream. These "low bit rate insert frames," or LBIFs, contain the image characteristics of a signal coded at the lower bit rate. With a bitstream having a higher bit rate being periodically coded using an LBIF, a point of image continuity between the two bitstreams is provided. Thus, switching from one bitstream to the other at this point in the video sequence minimizes the production of artifacts caused by differences in bit rate. In another embodiment of the invention, a separate set of transitional data is created, taking the form of "switch" frames, or S-frames. The S-frames are typically the difference between a frame of a first bitstream and a frame of a second bitstream. These frames are inserted into the decoded bitstream during the

transition from one bitstream to the other, and compensate for any visual artifacts that might otherwise occur due to the difference in bit rate of the two bitstreams.

Laksono directed to a "system and method for multiple channel video transcoding" (Laksono, Title). In further detail, Laksono discloses in the abstract, the following:

> A system and a method for transcoding multiple media channels is disclosed herein. The system includes a first processor to parse a media data stream having one or more media data channels and a vector processor to decompress, scale, and then compress the parsed media channel. A parsed media data channel, in one embodiment, is accessed using a bit manipulator and packetized into decoder instruction packets and transmitted to the vector processor using a sequencer. The vector processor decompresses the decoder instruction packets, scales a macroblock generated from the packets, and then compresses the scaled macroblock. As a result, the scaled and compressed output has less data associated with the media channel, allowing for faster and/or more efficient storage or transmission. A reduced sized scale buffer is associated with another disclosed embodiment.

It will be shown that the limitations of Claim 3 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claim should be allowed including those dependent there from.

H1. Claim 3

Initially, it is respectfully noted that Claim 3 directly depends from independent Claim 1. Thus, Claim 3 includes all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claim 3 (with the following applicable to Claim 3 by virtue of its respective dependency from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claim 3 is explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal

communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claim 3.

Thus, per Claim 3, a video decoder includes a demultiplexer and a normal decoding portion, with the demultiplexer connected in direct signal communication with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder (45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is intermediately connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claim 3. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal

communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claim 3) is performed external to the decoder (45) directly contrary to the explicit limitations recited in Claim 3, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claim 3, the Examiner has cited the <u>same stream</u> being demultiplexed. For example, against the preceding limitations of Claim 3, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claim 3. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver

disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claim 3, let alone that those elements are comprised within a video decoder as recited in Claim 3, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claim 3 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claim 3.

That is, while Claim 3 involves storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claim 3 involves a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claim 3.

Additionally, while the channel change stream recited in Claim 3 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claim 3), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30 (Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claim 3. To that end, we note the **<u>Examiner's inconsistency</u>** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated <u>within</u> the decoder, in direct contrast to the explicit limitations of Claim 3. Hence, <u>even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claim 3, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claim 3</u>. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claim 3.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67

and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claim 3 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claim 3, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claim 3, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claim 3 is explicitly directed to a video decoder, we further note that Claim 3 explicitly recites, *inter alia*, “at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures”. However, in direct contrast to the preceding explicit limitations of Claim 3, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claim 3, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claim 3, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: “Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location

is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, such memory (34) could NOT be used for decoding inter-coded pictures (but only for decoding the single stored I-frame) as the access of the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the

decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claim 3, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Regarding Girod, the same does not cure the deficiencies of Reitmeier. For example, the memories 140a, 140b, and 140c in cited Figure 2 of Girod are respectively outside of the encoders 100a, 100b, and 100c and hence simply store the encoded bitstreams that are respectively output from entropy coders 122a, 122b, and 122c. However, for such memories to be able to be used for decoding inter-coded pictures, such memories would need to be located within a decoder or "accessible" to a decoder for the purpose of decoding. That is, the decoder would need to know, *inter alia*, where such a picture is located within a video sequence to be able to determine whether forward or bi prediction is used, and so forth. Simply storing the output (i.e., a bitstream) of an encoder, that is simply adding a memory to the unidirectional output of an encoder, or even adding a memory to the unidirectional output of a decoder if such memory were similarly disposed at the unidirectional output of the decoder (45) in the RECEIVER of Figure 1 of Reitmeier, would render the pictures stored in such memory incapable of being used to decode inter-coded pictures as recited in Claims 2 and 5 for a number of reasons. As one reason, what is actually stored in the memories is a coded bitstream. However, as is known to one of skill in the art, a bitstream, as is (i.e., as output from the encoders 100a, 100b,

and 100c in Figure 2 of Girod), cannot be used to decode inter-coded pictures. Another reason is that access is not available to the encoder or to the decoder (noting again that the output of the encoders 100a, 100b, and 100c in Figure 2 of Girod, and the output of decoder (45) in RECEIVER Figure 1 of Reitmeier, are unidirectional). Yet another reason is that the relevant information for a stored picture to be able to be used as a reference is lacking, certainly in how such information can be "usefully" provided to a decoder.

Hence, in all these regards, Reitmeier and Girod fail to teach or suggest all the above reproduced limitations of Claim 3. Moreover, Laksono fails to cure the deficiencies of Reitmeier and/or Girod, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claim 3, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claim 3 is patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claim 3 is earnestly requested.

I. Whether Claim 6 is Unpatentable Under 35 U.S.C. §103(a) by U.S. Patent No. 6,118,498 to Reitmeier in view of U.S. Patent No. 6,480,541 to Girod et al. and well-known prior art

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To

render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murph*y, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious” (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claim 6 as being unpatentable over by U.S. Patent No. 6,118,498 to Reitmeier (hereinafter “Reitmeier” in short) in view of U.S. Patent No. 6,480,541 to Girod et al. (hereinafter “Girod” in short) and well-known prior art. The Examiner contends that the cited combination shows all the limitations recited in Claim 6.

Reitmeier is directed to a “channel scanning and channel change latency reduction in an ATSC television receiver” (Reitmeier, Title). In further detail, Reitmeier discloses in the abstract, the following:

> A method and apparatus for masking program selection latency in an MPEG-like information stream receiver, such as an ATSC or DVB television receiver. An information stream receiver receives VSB- or QAM-modulated

signals comprising an MPEG-like system streams including program transport streams. In a channel scanning mode of operation, a plurality of identified program transport streams (i.e., channels) are sequentially retrieved from one or more system streams. A portion of each retrieved program transport stream, such as an intra-frame encoded video frame within an included elementary video stream, is extracted and stored in a memory. In a channel changing mode of operation, if a desired channel is one of the sequentially scanned channels, then the stored I-frame is retrieved and coupled to a decoder while the desired channel is re-acquired by tuning, demodulating, and demultiplexing operations. In this manner, the inherent latency of the tuning, demodulating, and demultiplexing operations are somewhat masked. Moreover, by storing tuning and demodulation parameters associated with an anticipated "next" channel, the actual time required to retrieve that channel is reduced.

Girod is directed to a “method and apparatus for providing scalable pre-compressed digital video with reduced quantization based artifacts” (Girod, Title). In further detail, Girod discloses in the abstract, the following:

> A method for generating a digital motion video sequence at a plurality of bit rates uses a transitional coding source when switching between bitstreams having different bit rates during transmission of a video sequence. The transitional data may be frames coded using reconstructed frames reconstructed for a first bitstream using the characteristics of the second bitstream. These "low bit rate insert frames," or LBIFs, contain the image characteristics of a signal coded at the lower bit rate. With a bitstream having a higher bit rate being periodically coded using an LBIF, a point of image continuity between the two bitstreams is provided. Thus, switching from one bitstream to the other at this point in the video sequence minimizes the production of artifacts caused by differences in bit

rate. In another embodiment of the invention, a separate set of transitional data is created, taking the form of "switch" frames, or S-frames. The S-frames are typically the difference between a frame of a first bitstream and a frame of a second bitstream. These frames are inserted into the decoded bitstream during the transition from one bitstream to the other, and compensate for any visual artifacts that might otherwise occur due to the difference in bit rate of the two bitstreams.

It will be shown that the limitations of Claim 6 reproduced herein are not taught or suggested by the cited references (alone or in combination), and that such Claim should be allowed including those dependent there from.

I1. Claim 6

Initially, it is respectfully noted that Claim 6 directly depends from independent Claim 1. Thus, Claim 6 includes all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following recited in Claim 6 (with the following applicable to Claim 6 by virtue of its respective dependency from Claim 1):

1. A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

Initially, we note that as per MPEP 2111.02(I), "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation". We further note that Claim 6 is explicitly directed to a video decoder. In contrast, Reitmeier includes only three figures, where the first figure (Figure 1) is of a receiver, and the second and third figures are flowcharts. While Figure 1 of Reitmeier shows an main transport demux (35) and an aux demux and process (30), none of the demuxes (35) and (30) are comprised within a decoder, but rather are external to the decoder (45) shown in Figure 1 of Reitmeier.

In fact, neither demux (35) nor demux (30) are directly connected (i.e., "in **direct** signal communication") to the decoder (45), let alone and comprised therein as essentially explicitly recited in Claim 6.

Thus, per Claim 6, a video decoder <u>includes</u> a demultiplexer and a normal decoding portion, with the demultiplexer <u>connected in direct signal communication</u> with the normal decoding portion. In contrast, Reitmeier shows a demux (35) and a demux (30), both of which are external to (i.e., NOT included in) the decoder (45) and both of which are NOT in direct signal communication with the decoder (45).

Moreover, while Figure 1 of Reitmeier shows a switch (20) and another switch (40), such switches (20) and (40) are not part of the decoder (45), but rather are also external to the decoder

(45) just like the demuxes (35) and (30). While the Examiner has acknowledged the existence of the switch (e.g., element 40), the Examiner has wrongly stated that "the demultiplexor (35) is in direct signal communication with the decoder (45) since the only operation a switch performs is deciding which one of the demultiplexors [(30) or (35)] is to be in direct signal communication with the decoder" (Office Action, p. 3). The Examiner's understanding of the connections in Figure 1 of Reitmeier fails to realize the obvious, that the switch (40) is nonetheless an actual physical device having a physical structure that is <u>intermediately</u> connected between each of the demuxes (30) and (35) and the decoder (45) and, thus, none of the demuxes (30) and (35) can ever be in direct signal communication with the decoder (45), in direct contrast to the explicit limitations of Claim 6. To that end, we note that if switch (40) fails open (i.e., fails as an open circuit), then no signal can pass from the demuxes (30) and (35), through the switch (40), to the decoder (45), thus further showing the fact that switch (40) is an actual physical device located in between the demuxes and the decoder (45) and hence the demuxes are NOT in direct signal communication with the decoder (45) in Figure 1 of Reitmeier.

Hence, any signal selection and/or separation (e.g., such as "separating the normal stream and the channel change stream" as recited in Claim 6) is performed external to the decoder (45) directly contrary to the explicit limitations recited in Claim 6, as is clearly evident from even a cursory review of Figure 1 of Reitmeier.

Further regarding such separating of the normal stream and the channel change stream as recited in Claim 6, the Examiner has cited the <u>same stream</u> being demultiplexed. For example, against the preceding limitations of Claim 6, the Examiner cited column 9, line 63 to column 10, line 5 of Reitmeier. However, the same describes demultiplexing the transport program stream

for signal SO1, and then retrieving the elementary streams for SO1 from the transport program stream. We note that a transport program stream is simply a container format for encapsulating elementary streams. Hence, both the transport program stream and the elementary streams cited by the Examiner pertain to the same program/signal, namely SO1, in direct contrast to the explicit limitations recited in Claim 6. That is, if the transport program stream of SO1 corresponds to either one of the normal stream or the channel change stream, then certainly the elementary streams of SO1 encapsulated by the transport program stream of SO1 correspond to the same one of the normal stream or the channel change stream, hence failing to teach or suggest the explicit recited limitations.

We note that throughout the disclosure of Reitmeier, Figure 1 thereof is described as a receiver (see, e.g., Reitmeier, col. 2, lines 44-45, col. 2, lines 63-64, col. 2, line 67 to col. 3, line 3, and col. 7, line 66 to col. 8, line 1). However, as is known to those of ordinary skill in the art, a receiver is NOT a decoder, nor does a receiver require a decoder. For example, a receiver disposed in a DSLAM that, in turn, is disposed between a data source (e.g., a content provider) and an STB (e.g., a content consumer) may include a receiver to receive signals from the data source, but never needs to decode the signals that it receives, as it only re-transmits the signals downstream to the STB. Thus, as is readily evident, a receiver is not necessarily a decoder. Hence, Reitmeier fails to teach or suggest "a demultiplexor for receiving the compressed stream data and separating the normal stream and the channel change stream" as recited in Claim 6, let alone that those elements are comprised within a video decoder as recited in Claim 6, instead directly teaching away from the same.

We further note that the Examiner's position is unfair and misplaced and incorrect in

calling the entirety of FIG. 1 of Reitmeier a decoder in consideration of the fact that Figure 1 is referred to throughout Reitmeier as a receiver and further in consideration of the fact that the receiver actually includes a decoder (45) therein. As an analogous position to the Examiner's, in a rejection against a car radio, citing a antilock braking circuit in relation to the car radio simply because both the car radio and the antilock braking circuit are disposed in the car is unfair and misplaced and incorrect. However, a similar situation is occurring in the instant case in view of the Examiner's position regarding all of Figure 1 of Reitmeier as a decoder.

Further, while the demux <u>in the decoder</u> of Claim 6 receives the compressed stream data and separates the normal stream and the channel change stream there from, where both the normal and channel change streams are <u>generated external</u> to the video decoder and <u>both include a plurality of pictures for a same program</u>, Reitmeier stores a single I-frame for a particular stream in a memory 34 that is also disposed external to the decoder 45 of Reitmeier, in direct contrast to the explicit limitations recited in Claim 6.

That is, while Claim 6 involves storing in a video decoder, Reitmeier teaches storing in a memory device 34 located outside of a decoder.

Moreover, while Claim 6 involves a channel change stream that is explicitly recited as comprising a plurality of pictures, the I-frame that the Examiner has equated to the channel change stream is just that, a single I-frame, in direct contrast to the explicit limitations of Claim 6.

Additionally, while the channel change stream recited in Claim 6 is generated external to the video decoder (and, hence, external to the multiplexor comprised in the video decoder of Claim 6), the I-frame in Reitmeier is parsed from a video elementary stream in the demux 30

(Reitmeier, col. 5, lines 37-48) in direct contrast to the explicit limitations of Claim 6. To that end, we note the **Examiner's inconsistency** in his position. For example, we note that if the Examiner's position that the entire receiver of Figure 1 of Reitmeier is to be considered a decoder, then the single I-frame that is parsed from the video elementary stream in the demux 30 must be considered to be generated within the decoder, in direct contrast to the explicit limitations of Claim 6. Hence, even if assuming arguendo that the Examiner's position is correct regarding the entire receiver of Figure 1 of Reitmeier being a decoder, then Reitmeier still fails to teach or suggest all the recited limitations in Claim 6, since such single I-frame is generated by the demux 30 within the receiver and hence within the decoder according to the Examiner's interpretation, in direct contrast to the explicit limitations recited in Claim 6. Thus, it seems that anyway Figure 1 of Reitmeier is interpreted, Reitmeier still fails to teach or suggest all of the above reproduced limitations recited in Claim 6.

Additionally, we note that the Examiner's citation (e.g., to Reitmeier, col. 3, lines 34-67 and col. 4, lines 1-9) of signals SA, SB (also referred to as SO1 and SO2, respectively, when output from first switch 20) as corresponding to the above limitations of Claim 6 is incorrect and misleading, since SA and SB are different programs and, hence, neither of them represent a channel change stream as recited in Claim 6, namely as comprising a plurality of pictures for a same program (as the normal stream). That is, SA and SB do not comprise a plurality of pictures for a same program, in direct contrast to the explicit limitations recited in Claim 6, as it is the single I-frame derived within the receiver of Figure 1 of Reitmeier that is derived from one of streams SA and SB and which is used as to mask a channel change (see, e.g., Reitmeier, Abstract).

Also, noting again that Claim 6 is explicitly directed to a video decoder, we further note that Claim 6 explicitly recites, *inter alia*, "at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures". However, in direct contrast to the preceding explicit limitations of Claim 6, Reitmeier discloses, as cited by the Examiner, a memory (34) external to the decoder (45) shown in Figure 1 of Reitmeier. Hence, in that regard alone (i.e.., that the memory (34) is external to the decoder and not comprised within a decoder), Reitmeier fails to teach or suggest the preceding limitations of Claim 6, instead directly teaching away from the same. Moreover, we note that the disclosed purpose of memory 34 in Figure 1 of Reitmeier is not for decoding as explicitly recited in Claim 6, but rather for channel scanning (see, e.g., Reitmeier, col. 5, lines 37-60). In fact, according to the disclosure in Reitmeier relating to the memory (34), the following is disclosed: "Each time an I-frame is identified, the identified I-frame is stored in a location in memory 34 associated with the particular program stream. Thus, the memory location is constantly over-written with a new I-frame each time a new I-frame is identified" (Reitmeier, col. 5, lines 43-47). Hence, in this regard, it is clear that the memory (34) disclosed in Reitmeier is not for storing reference pictures for use in decoding inter-coded pictures, but rather for scanning channels, noting that the last sentence in the cited paragraph of Reitmeier even explicitly discloses such purpose as does the whole paragraph including the first introductory sentence of the same.

Moreover, we note that given the disconnect regarding the connections between the memory (34) and the decoder (45) in Reitmeier, <u>such memory (34) could NOT be used for decoding inter-coded pictures</u> (but only for decoding the single stored I-frame) as the access of

the decoder to the frames stored therein for decoding purposes as reference frames seems to be completely lacking in Reitmeier. For example, the direction of data flow from (the demux (30) that includes) the memory (34) towards the decoder (45), noting that the two (memory and decoder) are not even directly connected together, is simply one-way and, hence, the decoder (45) would not be able to access or know which is the current reference frame stored in the memory (34) at the time such reference picture would be needed to decode another picture as there is no feedback loop from the decoder (45) to the memory (34), for example, to identify the current frame and/or to cause its' timely retrieval, notwithstanding the fact that only one I-frame appears to be stored therein at any given time.

Moreover, while subsequent data for the same program as the I-frame may be decoded later, given the time lapse from the parsing and storing of the I-frame from the corresponding video elementary stream to the time that the I-frame is referred to by a channel change for a corresponding channel and the even later time that the subsequent data is made available to the decoder, a next group of pictures would likely already be current for decoding, rendering what amounts to a stale I-frame (for a previously current GOP) that would not be able to used as a reference frame for (inter) pictures in the next group of pictures. This is particularly so since the desired channel must be **re-acquired** by tuning, demodulating, and demultiplexing operations (Reitmeier, Abstract) (emphasis added). Such staleness is not an issue in the invention of Claim 6, where both a normal stream and a channel change stream are concurrently received (via the compressed stream).

Regarding Girod, the same does not cure the deficiencies of Reitmeier. For example, the memories 140a, 140b, and 140c in cited Figure 2 of Girod are respectively outside of the

encoders 100a, 100b, and 100c and hence simply store the encoded bitstreams that are respectively output from entropy coders 122a, 122b, and 122c. However, for such memories to be able to be used for decoding inter-coded pictures, such memories would need to be located within a decoder or "accessible" to a decoder for the purpose of decoding. That is, the decoder would need to know, *inter alia*, where such a picture is located within a video sequence to be able to determine whether forward or bi prediction is used, and so forth. Simply storing the output (i.e., a bitstream) of an encoder, that is simply adding a memory to the unidirectional output of an encoder, or even adding a memory to the unidirectional output of a decoder if such memory were similarly disposed at the unidirectional output of the decoder (45) in the RECEIVER of Figure 1 of Reitmeier, would render the pictures stored in such memory incapable of being used to decode inter-coded pictures as recited in Claims 2 and 5 for a number of reasons. As one reason, what is actually stored in the memories is a coded bitstream. However, as is known to one of skill in the art, a bitstream, as is (i.e., as output from the encoders 100a, 100b, and 100c in Figure 2 of Girod), cannot be used to decode inter-coded pictures. Another reason is that access is not available to the encoder or to the decoder (noting again that the output of the encoders 100a, 100b, and 100c in Figure 2 of Girod, and the output of decoder (45) in RECEIVER Figure 1 of Reitmeier, are unidirectional). Yet another reason is that the relevant information for a stored picture to be able to be used as a reference is lacking, certainly in how such information can be "usefully" provided to a decoder.

Hence, in all these regards, Reitmeier and Girod fail to teach or suggest all the above reproduced limitations of Claim 6. Moreover, the well-known prior art fails to cure the deficiencies of Reitmeier and/or Girod, and is silent regarding the same.

Thus, none of the cited references, either taken singly or in any combination, teach or suggest all of the above reproduced limitations of Claim 6, and a proper *prima facie* obviousness rejection has not been made.

Accordingly, Claim 6 is patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, reversal of the rejection of Claim 6 is earnestly requested.

J. Conclusion

At least the above-identified limitations of the pending claims are not described, disclosed, nor suggested by the contents of the Reitmeier, Brooks, Laksono, and Girod references and that of the mentioned well-known prior art, considered alone or in combination. Consequently, all of the anticipation and obviousness rejections constructed by the Examiner are improper and *prima facie* deficient.

Accordingly, it is respectfully requested that the Board reverse the rejections of independent Claims 1-11 under 35 U.S.C. §102(b), and 35 U.S.C. §103(a).

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Respectfully submitted,

BY: /Guy H. Eriksen/
Guy H. Eriksen, Attorney for Applicant
Registration No.: 41,736
Telephone No.: (609) 734-6807

Thomson Licensing Inc.
Patent Operations
P.O. Box 5312
Princeton, NJ 08543-5312

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8. <u>CLAIMS APPENDIX</u>

1. (previously presented) A video decoder for receiving compressed stream data and providing decompressed video output, the decoder comprising:

a demultiplexor for receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

a normal decoding portion in direct signal communication with the demultiplexor for selectably receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

at least one normal frame store in signal communication with the normal decoding portion for storing reference pictures for use in decoding inter-coded pictures.

2. (previously presented) A video decoder as defined in Claim 1, further comprising:

a lower-resolution decoding portion in signal communication with the demultiplexor for receiving the compressed channel change stream;

at least one channel change frame store in signal communication with the lower-resolution decoding portion for storing reference pictures;

an upsampling unit in signal communication with the lower-resolution decoding portion for upsampling decompressed video data and selectably outputting said data to at least one of the at least one normal frame store and a display.

3. (previously presented) A video decoder as defined in Claim 1, further comprising a postprocessing filter in signal communication with the normal decoding portion for postprocessing decompressed video data and selectably outputting said data to at least the at least one normal frame store.

4. (original) A video decoder as defined in Claim 1, further comprising means for selecting a compressed picture to decode from one of a normal stream and a channel change stream.

5. (original) A video decoder as defined in Claim 4, further comprising means for upsampling lower resolution channel change stream pictures.

6. (previously presented) A video decoder as defined in Claim 1, further comprising means for decoding redundant picture syntax in compliance with the JVT/H.264/MPEG AVC compression standard.

7. (original) A video decoder as defined in Claim 1, further comprising means for decoding channel change pictures from user data of corresponding normal stream pictures.

8. (original) A video decoder as defined in Claim 1, further comprising means for responding to a signal from an encoder indicating whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures.

9. (original) A video decoder as defined in Claim 4, further comprising means for postprocessing the output of the normal decoder to reduce the abruptness of a transition from lower-quality to normal quality output.

10. (previously presented) In a video decoder, a video decoding method for receiving compressed stream data and providing decompressed video output, the method comprising:

receiving the compressed stream data and separating a normal stream and a channel change stream there from, the normal stream and the channel change stream each being generated external to the video decoder and comprising a plurality of pictures for a same program;

receiving at least one of the compressed normal and channel change streams, and providing decompressed video output; and

storing reference pictures for use in decoding inter-coded pictures.

11. (original) A video decoding method as defined in Claim 10, further comprising at least one of:

selecting a compressed picture to decode from one of a normal stream and a channel change stream;

upsampling lower resolution channel change stream pictures;

decoding redundant picture syntax in compliance with the JVT standard;

decoding channel change pictures from user data of corresponding normal stream pictures;

responding to a signal from an encoder indicating whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures; and

postprocessing the output of the normal decoder to reduce the abruptness of a transition from lower-quality to normal quality output.

12. (cancelled)

9. RELATED EVIDENCE APPENDIX

None.

10. RELATED PROCEEDINGS APPENDIX

None.